

Remarks:

In the specification, paragraph [0009] has been deleted to correct a clerical error. Paragraph [0009] was identical to paragraph [0008], which remains in the application.

Claims 2, 8, and 24-39 are currently pending in the application. Claims 2, 8, 24, 27-31, 34, 38, and 39 have been amended to correct informalities and to more distinctly claim the invention, and claim 33 has been canceled. It is respectfully submitted that no new matter is added to the application by these amendments. Reconsideration and reexamination is respectfully requested.

Claims 2, 8, and 24-39 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. The rejection is respectfully traversed.

In particular, claims 24, 2, and 8 were identified as having terms (“the degree,” “the pre-rinse,” and “the length”) lacking antecedent basis. Regarding “the degree” in claim 24, “the degree” has been amended to “a degree.” Regarding “the pre-rinse” in claims 2 and 8, the dependency of claim 2 has been changed to claim 25, which contains “a pre-rinse” to provide antecedent basis for “the pre-rinse,” and the phrase containing “the pre-rinse” in claim 8 has been deleted. Regarding “the length” in claim 8, the dependency of claim 8 has been changed to claim 32, which contains “a length” to provide antecedent basis for “the length.” These amendments ameliorate the antecedent basis issues identified by the Examiner, and Applicants request the withdrawal of the rejection.

Claims 2, 8, and 24-39 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 2, 8-10, and 12-20 of co-pending U.S. Patent Application No. 10/714,110, which is assigned to the assignee of the present application. The rejection is respectfully traversed.

While Applicants disagree with the substance of the obviousness-type double patenting rejection, the fact is that the current application was filed the same day as the ‘110 application. Thus, the term of a patent issuing from the current application, depending on the patent term adjustment, will likely be similar if not identical to that of a patent issuing from the ‘110 application. Since there will be no substantive difference in the patent terms, Applicants are

submitting herewith an appropriate terminal disclaimer to obviate a provisional double patenting rejection over a pending application (form PTO/SB/25) to address the obviousness-type double patenting rejection in the most cost-effective manner available.

Claims 2, 8, and 24-39 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 7 and 8 of co-pending U.S. Patent Application No. 10/713,304, which is assigned to the assignee of the present application. The rejection is respectfully traversed.

While Applicants disagree with the substance of the obviousness-type double patenting rejection, the fact is that the current application was filed the same day as the '304 application. Thus, the term of a patent issuing from the current application, depending on the patent term adjustment, will likely be similar if not identical to that of a patent issuing from the '304 application. Since there will be no substantive difference in the patent terms, Applicants are submitting herewith an appropriate terminal disclaimer to obviate a provisional double patenting rejection over a pending application (form PTO/SB/25) to address the obviousness-type double patenting rejection in the most cost-effective manner available.

Claims 2, 8, and 24-39 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 3,888,269 to Bashark ("Bashark") in combination with U.S. Patent No. 5,586,567 to Smith et al. ("Smith"). The rejection is respectfully traversed.

Bashark discloses a dishwasher (10) comprising racks (15) to carry dishes and a conventional spray arm (22) for spraying the dishes carried in the racks (15) with liquid. The dishwasher (10) further includes a sensing element (26) adapted to determine the turbidity of the liquid. A control (36) controls the operation of the dishwasher (10) based on, at least in part, the output of the sensing element (26). As shown in the flow chart of Fig. 7, the turbidity sensing results in a "yes" or "no" decision regarding whether the water is turbid, and the decision outcome determines which steps in a predetermined operation are executed.

Smith discloses a dishwasher (10) comprising upper and lower racks (14, 15) to support items to be washed and upper and lower spray mechanisms (19, 20) to impinge liquid on the articles in the racks (14, 15). The dishwasher (10) further includes a sump (13) at the lower end of a wash chamber and a pump (17) mounted below the sump (13) with an inlet connected to the

sump (13) to receive water from the sump (13). The upper spray mechanism (19) is coupled to an outlet of the pump (17) through a fluid conduit (18), while another outlet of the pump (17) is coupled to the lower spray mechanism (20) through a fluid conduit (21). A turbidity sensing mechanism (25) is included in the conduit (18) to measure turbidity, which is a measure of the suspended and/or soluble soils in the fluid. The sensing mechanism (25) is positioned below the sump (13), generally aligned with the pump (17). Thus, when fluid is in the sump (13), fluid also is in the sensing mechanism (25). During operation, "fluid is withdrawn from the sump (13) by pump (17) and supplied to the spray mechanisms (19, 20)." (col. 3, lines 17-18)

The combination of Bashark and Smith fails as there is no teaching or suggestion to make the combination. The standards for a finding of obviousness must be strictly adhered to. Simply citing one or more prior art references that illustrate different facets of the invention and then concluding that it would be obvious to combine the references to create the applicant's invention is wholly inadequate.

A claimed invention is unpatentable if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art....The ultimate determination of whether an invention would have been obvious under 35 U.S.C. §103(a) is **a legal conclusion based on underlying findings of fact.**¹

A critical step in analyzing the patentability of claims pursuant to section 103(a) is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field....Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher."

Most if not all inventions arise from a combination of old elements....Thus, every element of a claimed invention may often be

¹ The underlying factual inquiries include (1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; and (3) the differences between the claimed invention and the prior art. *Graham v. John Deere Co.*, 383 U.S. 1, 17, 15 L. Ed. 2d 545, 86 S. Ct. 684 (1966).

found in the prior art....However, **identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention....**Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, **there must be some motivation, suggestion or teaching of the desirability of making the specific combination** that was made by the applicant....Even when obviousness is based on a single prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference.

The motivation, suggestion or teaching may come explicitly from statements in the prior art, the knowledge of one of ordinary skill in the art, or, in some cases the nature of the problem to be solved....In addition, the teaching, motivation or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references....The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art....Whether the Patent Office Examiner relies on an express or an implicit showing, **the Examiner must provide particular findings related thereto....Broad conclusory statements standing alone are not "evidence."**

In Re Werner Kotzab, 217 F.3d 1365; 55 U.S.P.Q.2d (BNA) 1313 (Fed. Cir. 2000)(citations omitted)(emphasis added).

The Examiner has failed to identify any motivation, suggestion, or teaching of the desirability of combining Bashark with Smith to arrive at Applicants' invention. There has been no statement identified in the prior art as to the desirability of the asserted combination, there has been no discussion of the knowledge of one of ordinary skill in the art or the nature of the problem to be solved, there has been no identification of what the combined teachings, the knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to one of ordinary skill in the art as required for a showing of motivation. The Examiner has failed to provide any particular findings related to any motivation, suggestion, or teaching of the desirability of combining Bashark with Smith.

In the Office Action, the Examiner has acknowledged that Bashark "does not teach determining the degree of soiling of the rinse liquid by determining the turbidity of the lower and

upper wash [*sic*, spray] plane as claimed,” (November 30, 2005 Office Action, page 4) and combines Bashark with Smith to allegedly reach the claimed invention. The only discussion of Smith in the Office Action relates to Smith’s disclosure of a turbidity sensing mechanism for a dishwasher and disclosure that turbidity is a measure of the suspended and/or soluble soils in the fluid. Thereafter, it is stated that “it would have been obvious for one skilled in the art to use the process taught by Bashark to obtain the claimed process, because the steps of measuring the turbidity as taught by Bashark will include determining the solubility of the soil as claimed. The steps as claimed are inherent in the Bashark process. This is also because the degree of turbidity depends on the amount of soil been found on the dishes.” (November 30, 2005 Office Action; page 5) The Examiner does not provide any discussion of the combination of Bashark with Smith, much less any reasoning for making the combination. It is unclear from the Examiner’s statements as to how the alleged combination of Bashark and Smith is to be made. Additionally, the statement quoted above is inaccurate as the claims do not determine the *solubility of the soil*; rather, the claimed method determines a *degree of soiling by determining turbidity values*. Therefore, the Examiner has failed to meet his burden for making the combination.

Furthermore, Smith does not disclose what the Examiner acknowledges as missing from Bashark, i.e., determining the degree of soiling of the rinse liquid by determining the turbidity of the lower and upper spray planes. Nothing in Smith even suggests determining the turbidity of an upper wash plane and determining the turbidity of a lower wash plane. Even though the Smith dishwasher has upper and lower spray mechanisms, Smith does not disclose operating the dishwasher to obtain separate turbidity values for the upper and lower wash planes. Instead, Smith refers to generally measuring the turbidity of the fluid in the sump. Thus, Applicants do not see any reasoning for the Examiner to combine Smith with Bashark to attempt to reach the claimed invention, and the Examiner has not provided Applicants with any such reasoning.

Assuming, *arguendo*, that the references were combinable, they would still not render the claims obvious. A combination of Bashark with Smith would result in the dishwasher operation process disclosed in Bashark executed with the turbidity sensing mechanism of Smith, which measures the turbidity of the fluid in the sump.

Claim 24, which is the independent claim from which all of the other claims depend, calls

for a method having the steps of (1) determining a degree of soiling of the liquid by determining turbidity values corresponding to the recirculation of the liquid in the lower spray plane and the upper spray plane, respectively, and (2) setting at least one operating parameter of at least one of the rinse step and the cleaning step based on the determined degree of soiling. Thus, claim 24 requires the determination of a separate turbidity value for each of the upper and lower spray planes. The alleged combination does not include the step of determining the degree of soiling as claimed because the alleged combination does not determine turbidity values corresponding to the recirculation of the liquid in the lower spray plane and the upper spray plane, respectively. The alleged combination cannot include this element because neither of the references includes this element. In Smith, which contributes the turbidity sensing mechanism to the alleged combination, there is no discussion of determining a turbidity value for the upper spray plane separate from a turbidity value of the lower spray plane. Smith only collectively refers to the spray mechanisms (see quote from col. 3, lines 17-18) and generically describes measuring turbidity of liquid in the sump. As such, the combination only teaches measuring turbidity of the liquid in the sump – not determining separate turbidity values for upper and lower spray planes. Further, there is no teaching of determining separate turbidity values for upper and lower spray planes in Bashark. Bashark discloses only a single spray arm positioned below both of the dish racks. This configuration has only a single spray plane as the single spray arm can spray liquid in only one direction, which is upward onto the dish racks. Bashark, therefore, does not teach upper and lower spray planes, much less determining separate turbidity values for an upper spray plane and a lower spray plane. Furthermore, it would not have been obvious in view of the alleged combination to determine the degree of soiling in the claimed manner. It therefore follows that claim 24 is patentable over the alleged combination.

Claims 2, 8, and 25-39 depend directly or indirectly from claim 24 and are likewise not obvious and patentable over the alleged combination of Bashark and Smith.

Claim 28 depends from claim 24 and further defines over the alleged combination in that it calls for the determining of the degree of soiling to comprise determining a difference value corresponding to the difference between the turbidity values. As discussed above with respect to claim 24, neither the alleged combination nor either of the references used to construct the

alleged combination include determining separate turbidity values for the upper spray plane and the lower spray plane. It follows that the alleged combination does not include determining a difference between the separate turbidity values, and it would not have been obvious to do so in view of the alleged combination. Thus, claim 28 is not obvious and patentable over the alleged combination.

Claim 29 depends from claim 28 and also defines over the alleged combination. Claim 29 requires the determining of the turbidity values to correspond to the turbidity when the turbidity is no longer increasing upon the recirculation of the liquid in the lower spray plane and the upper spray plane, respectively. During operation of the alleged combination's turbidity sensor, which is the Smith turbidity sensor, "the signals from the sensor are accumulated over a predetermined period of time (measurement interval) to provide a frequency signal value or count that is representative of the turbidity of the fluid." (col. 5, lines 3-6) There is no discussion of having the measurement interval correspond to when the turbidity is no longer increasing. Even if the alleged combination had the Bashark turbidity sensor, the Bashark sensing element simply determines whether the fluid is turbid or not turbid. Consequently, the alleged combination does not include turbidity values that correspond to when the turbidity is no longer increasing, nor would this claim element have been obvious in view of the alleged combination. Thus, claim 29 is not obvious and patentable over the alleged combination.

Claim 30 depends from claim 29 and adds that the determining of the turbidity values comprises alternately recirculating the liquid in the lower and upper spray plane, which is not included in the alleged combination. Neither of the references for the alleged combination discloses alternately recirculating liquid in the lower and upper spray planes: Smith only refers to generically supplying water to the spray mechanisms, and Bashark only has one spray arm that sprays liquid upward. As such, the combination does not teach alternately recirculating liquid in the lower and upper spray planes. It also would not be obvious to alternately recirculate liquid in the lower and upper spray planes in view of the alleged combination. As a result, claim 30 is not obvious and patentable over the alleged combination.

Claim 31 depends from claim 30 and calls for the determining of the turbidity values to comprise alternately recirculating the liquid in the lower and upper spray planes until the

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turbidity stops increasing for both of the lower and upper spray planes. The arguments presented above for claims 29 and 30 apply to claim 31 and are not repeated for brevity. Thus, claim 31 is not obvious and patentable over the alleged combination.

Claims 32, 34, 36, and 8, which all depend directly or indirectly from claim 31, further define the inventive method by adding additional steps or expounding on already claimed steps. These claims build upon the limitations set forth in claims 28 and 29, and the arguments presented above for claims 28 and 29 apply to claims 32, 34, 36, and 8 and are not repeated for brevity. Thus, claims 32, 34, 36, and 8 are not obvious and patentable over the alleged combination.

It is respectfully submitted that the claims are allowable over the prior art of record. Nevertheless, Applicants are filing a Request for Continued Examination contemporaneously herewith pursuant to 37 C.F.R. § 1.114. Prompt notification of allowability is respectfully requested.

Respectfully submitted,
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